Siting Considerations for Utility Scale Renewable Energy Facilities

Facility Types Covered Under PA 233

Wind: 100MW or greater

Acres Needed Per MW:
50 acres*

(equates to min avg of **5000 acres**)

*Per MISO “Generation Interconnection Manual”

Facility Types Covered Under PA 233

Solar: 50MW or greater

Acres Needed Per MW:
5 acres*

(equates to min avg of **250 acres**)

*Per MISO “Generation Interconnection Manual”

Facility Types Covered Under PA 233

Battery: 50MW or greater

Acres Needed Per MW:
0.1 acres*

(equates to min avg of **5 acres**)

*Per MISO “Generation Interconnection Manual”

Transmission versus Distribution

Transmission Lines *move* high-voltage from power plants to local distribution nodes *(e.g. ITC Holdings, GNT, Wolverine)*

Distribution Lines *lower voltage* and deliver power to homes and businesses *(e.g Consumers Energy)*

Utility scale projects need Transmission lines *and* Transmission substations

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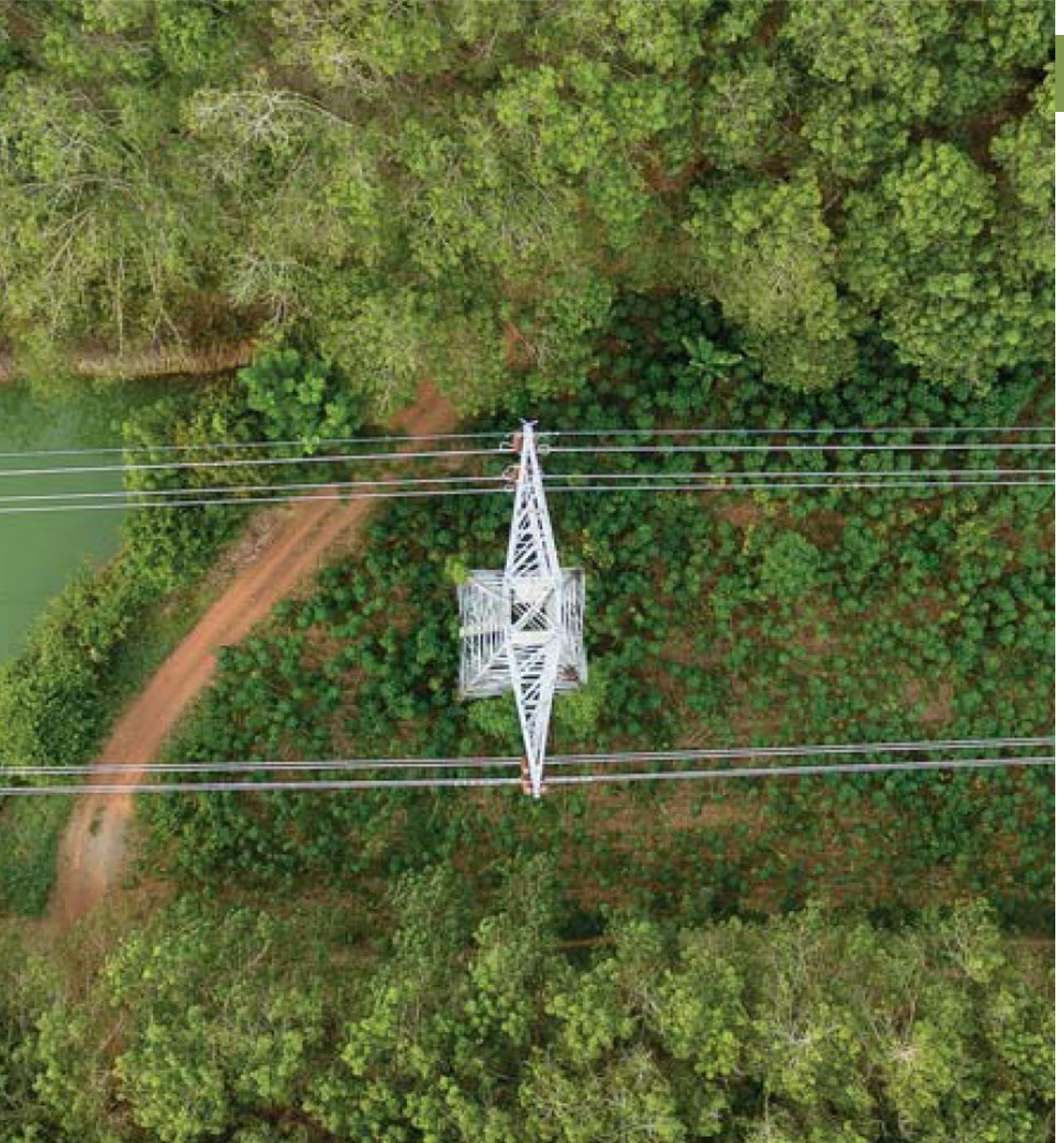
Utility scale projects will require involvement and connection agreements with high-voltage transmission operators/owners



Transmission Connectivity with ITC

No major technical constraints with transmission system (system stability, short-circuit limits)

Sufficient grid capacity for desired project size with minimal upgrades required

Clear path to obtain interconnection agreement within a workable timeline

60 month average project timeline (avg 36 months for project planning and another 24 months for permitting)

Utility Scale Project Considerations (of developer):

Reasonable Distance to High-Voltage Transmission lines

- The greater the distance to interconnection the greater the project cost

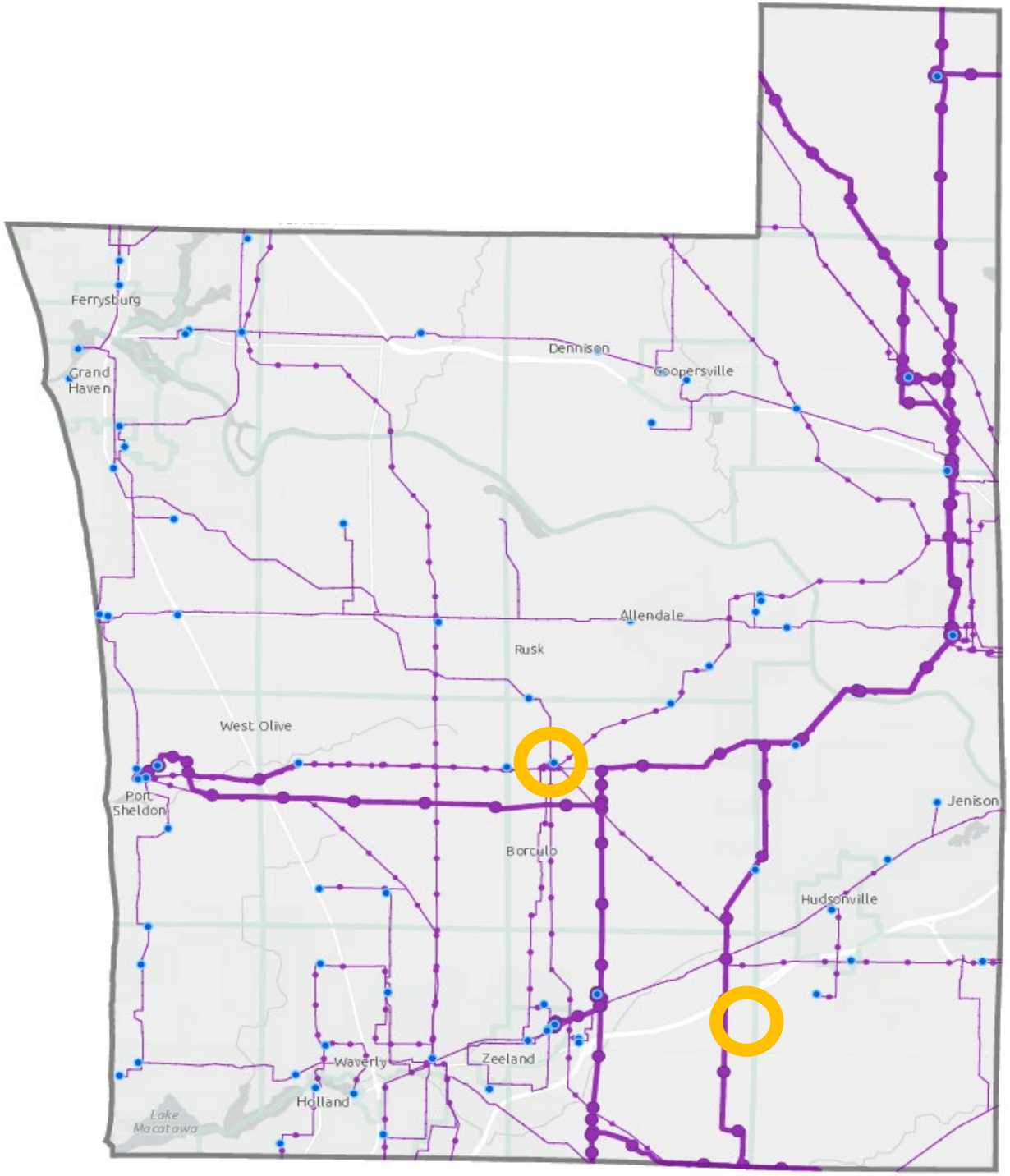
Access to Substation(s) with Potential Capacity

- Utility-Scale Projects can construct new *transmission* substations if needed

General land characteristics:

- Flat or gently sloping terrain: slopes <5–10% preferred
- Limited need for major grading or earthworks
- Low risk of stormwater/flooding and sediment/erosion control

Existing Transmission Infrastructure



Power Lines

Max. kV

< 100

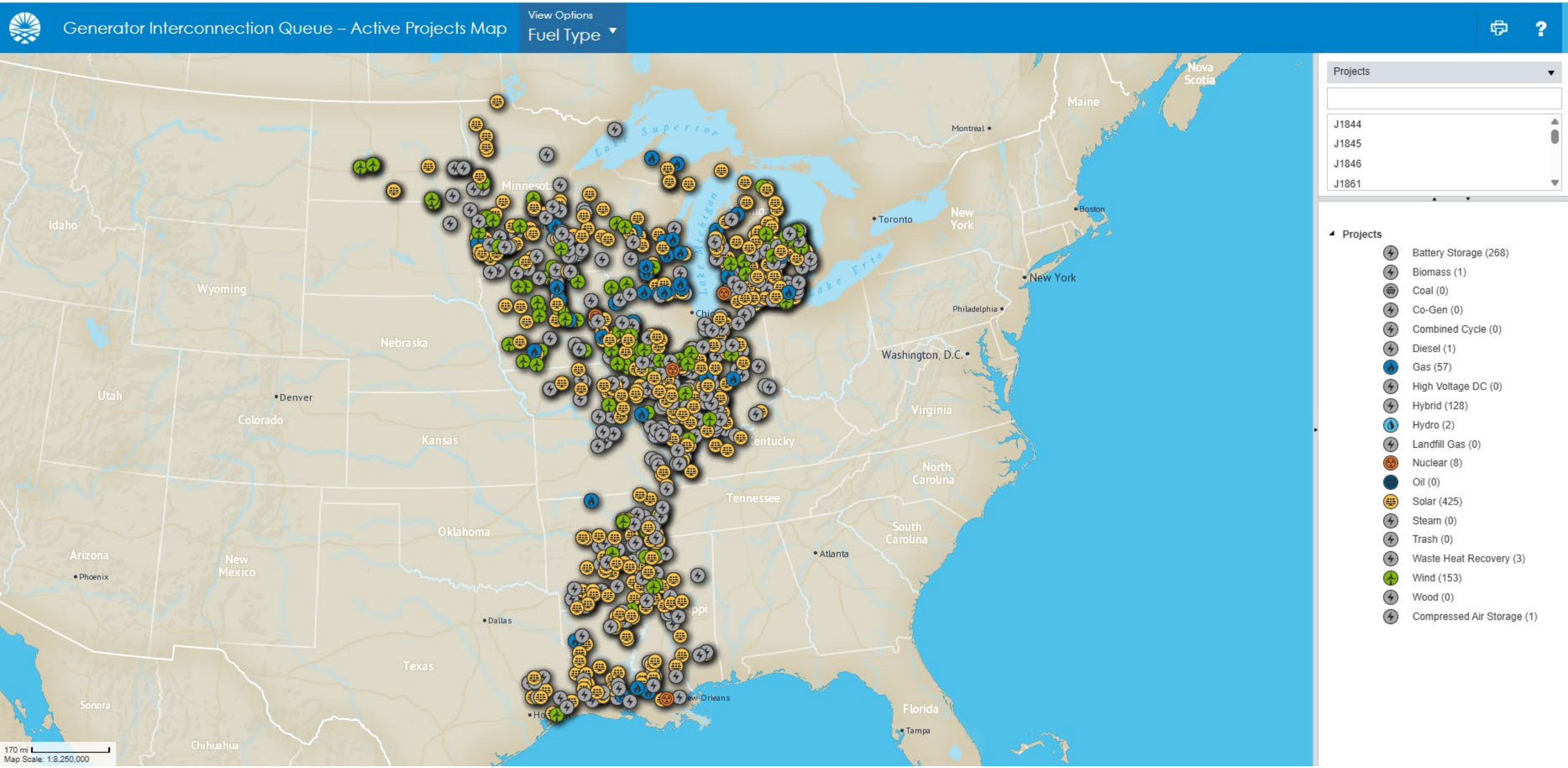
101 - 161

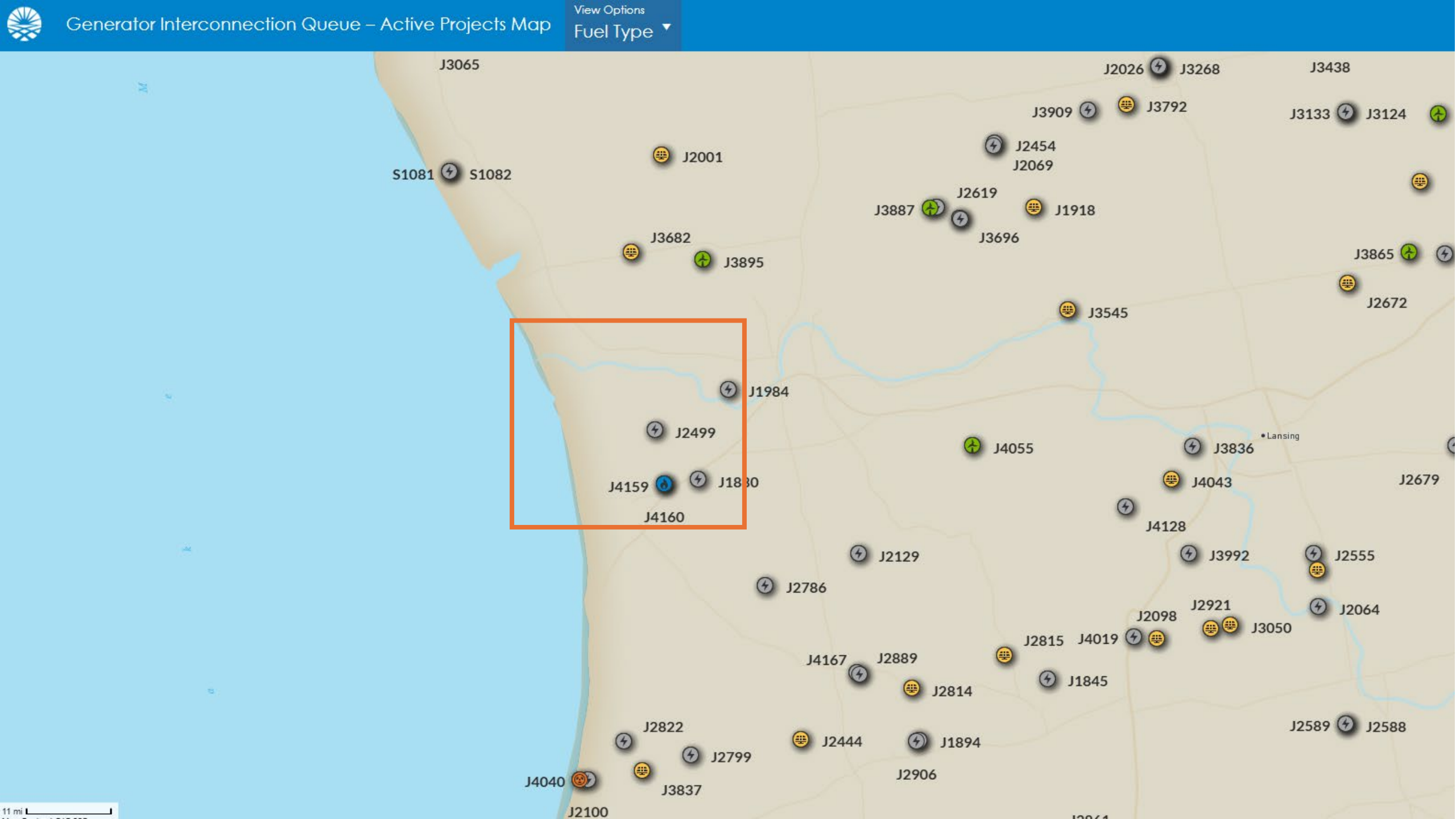
162 - 220

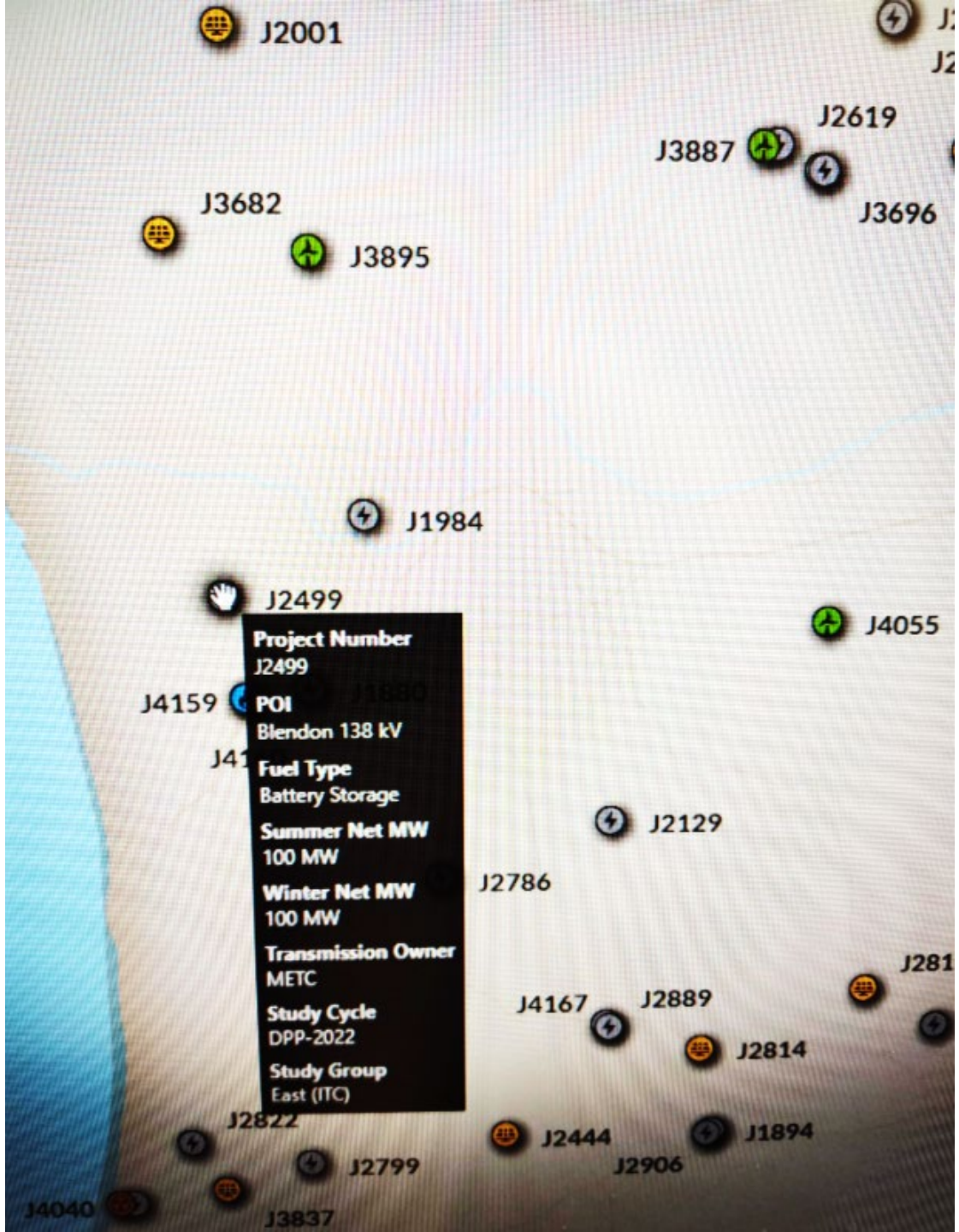
221 - 345

Substation (76)

MISO Mapper – weblink: https://giqueue.misoenergy.org/PublicGiQueueMap/index.html




Generator Interconnection Queue – Active Projects Map
View Options
Fuel Type
J3065
J2026
J3268
J3438
J3909
J3792
J3133
J3124
J2454
J2069
S1081
S1082
J2001
J2619
J3887
J1918
J3696
J3682
J3895
J3865
J2672
J3545
J1984
J2499
J4055
J3836
Lansing
J4159
J4160
J4043
J2679
J4128
J2129
J3992
J2555
J2786
J2921
J2098
J2064
J3050
J2815
J4019
J4167
J2889
J1845
J2814
J2822
J2444
J1894
J2589
J2588
J2799
J4040
J2906
J3837
J2100
11 mi


J2001
J2619
J3887
J3696
J3682
J3895
J1984
J2499
J4055
Project Number
J2499
POI
Blendon 138 kV
Fuel Type
Battery Storage
Summer Net MW
100 MW
Winter Net MW
100 MW
Transmission Owner
METC
Study Cycle
DPP-2022
Study Group
East (ITC)
J4159
J2129
J2786
J4167
J2889
J2814
J2822
J2444
J1894
J2799
J2906
J4040
J3837


J2001
J2619
J3887
J3696
J3682
J3895
J1984
Project Number
J1984
POI
Tallmadge 138kV
Fuel Type
Battery Storage
Summer Net MW
50 MW
Winter Net MW
50 MW
Transmission Owner
METC
Study Cycle
DPP-2021
Study Group
East (ITC)
J2499
J4055
J4159
J4160
J2129
J2889
J2815
J2814
J2822
J2444
J1894
J2799
J2906
J3837
J2100